

Stretch Garment Dermatitis

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■ *A disease of the skin, not hitherto described, is caused by pressure or tension on the skin from the wearing of tight-fitting stretch garments such as "stretch bras," "stretch girdles" and "stretch socks." The condition is not due to chemical sensitization of fabrics, dyes or other additives but is of mechanical origin.*

The eruption may assume various clinical forms and may be characterized by a nondescript erythematous and eczematous appearance or may consist of an exaggeration, in the areas covered by the stretch garment, of already existing dermatosis such as lichen planus, psoriasis, acne vulgaris, discoid lupus erythematosus or atopic dermatitis.

IT IS WELL KNOWN that the elastic bands commonly present in both men's and women's underwear and nightclothes are frequently the cause of irritation to the skin. This is especially true if the elastic material is rubberized or is unusually tight-fitting. Often such skin irritations are the result of a true allergic contact sensitivity, confirmed by positive reactions to patch tests to material from the elastic bands.² Furthermore, allergic skin reactions, again confirmed by positive patch tests, have been elicited by the synthetic yarn Spandex® in brassieres, as reported by Allenby,¹ by Porter and Sommer,⁵ and by Stewart, Danto and Maddin.⁸ We have ourselves seen at least one instance of allergic sensitivity to the Lycra® panels which composed the expandable parts of both a stretch bra and a stretch girdle.

The skin eruptions with which we are concerned in this communication, however, are apparently not truly allergic in nature but are the result of friction and pressure applied to a localized area of skin for a fairly protracted length of time. Consid-

ering that Ribaudo and Formato,⁶ and Craig and Dvorak,³ under the appropriate title "Panty Girdle Syndrome," have described an obstructive vascular reaction to a commonly-used stretch garment, it is not surprising that an article of clothing capable of producing such relatively deep-seated injury should be capable of irritation to the overlying skin. Stretch garment dermatitis may well be merely a more severe and extensive form of the friction dermatitis caused by the elasticized bindings mentioned above. The fact that it is more extensive and can be more severe is, we think, justification for attempting to describe it and bring it to the attention of skin specialists. In addition, we are likely to be seeing more of it, since stretch garments have proved to be highly acceptable to the buying public. Furthermore, the textile industry seems bent on developing more and ever newer fabrics that lend themselves well to the design of stretch-type garments.

Of course, these articles of apparel are also subjected to the various dyes and additives intended to give them a lustrous surface, or to make them wrinkle-resistant and "drip-dry" as are clothes of the non-stretch variety. Such dyes and additives may produce adverse cutaneous reactions, but usu-

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ally on the basis of an allergic contact sensitization. These reactions were classically described by Schwartz and Peck⁷ in 1945.

To conform to the criteria we have arbitrarily set up for stretch garment dermatitis, the skin outbreak should not be the result of sensitivity to a chemical but should be of mechanical origin—that is, it should be the result of friction or pressure caused by the wearing of a tight-fitting article of clothing made of an elasticized fabric. Such factors as movement of the skin surface under the garment with each bodily motion, and the tropical environment of the skin caused by increased heat and humidity resulting from the tight fit would be aggravating factors.

Stretch garment dermatitis assumes two principal clinical forms: (1) A nondescript, erythematous and eczematous eruption, usually nonexudative, confined to the area of the body covered by the stretch garment and perhaps most severe where the garment binds most closely; and (2) an exaggeration, in the areas covered by the stretch garment, of already existing dermatosis. The stretch garment dermatitis that first came to our notice was of the former variety, but it was the latter type that started us thinking of it as an entity.

Early in 1965 we became aware that some of our adolescent girl patients undergoing treatment for acne were showing relatively poor response to usually effective therapy on the shoulders and back, even though the acne on the face and chest was improving in a satisfactory manner. It soon became obvious that what these girls had in common, besides the lack of response noted, was the



Figure 1.—Stretch garment acne. View of shoulder from above and rear, showing accentuation of papules, pustules and comedones where elastic strap rubs.



Figure 2.—View of back, same patient as Figure 1, showing increased concentration of papules and papulopustules where the arm straps cross the scapular area and where the cross strap traverses the midback.

wearing of very tight-fitting stretch bras. Closer observation showed that the number of comedones, papules and papulopustules was much increased under the bra straps where they crossed the shoulders and traversed the scapulae, and also on the lower back under the cross-strap. Usually a slight increase in acne activity was also demonstrable in a zone about one-half to one centimeter on either side of the straps, corresponding to the zones of friction where the bra rubbed with arm movement. On one patient in particular, from the back view, acne activity showed almost a perfect outline of her brassiere. The breasts, not being an area of usual acne outbreak, showed no such picture. Friction from the upper border of the bra “cup” showed a tendency to aggravate acne on the adjacent areas of the chest, however, and acne on the anterior surface of the shoulders and the clavicular regions could be made worse by the elastic straps.

When we counseled this group of patients to resume the wearing of the old style nonelastic brassieres, the limited availability of these quaint memorabilia from the past became evident. Brassieres made of elasticized material are now so widely used that, we have been advised, the “ordi-

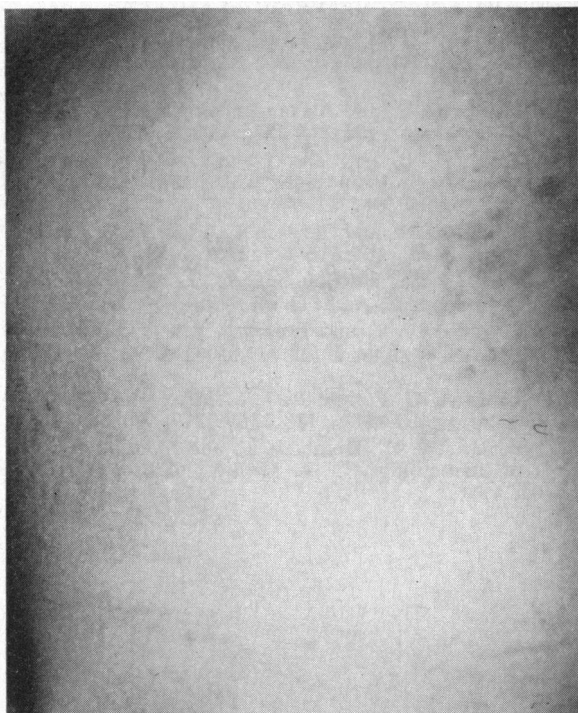


Figure 3.—Nondescript eczematous dermatitis on the outer aspect of the left hip, corresponding to area of friction from stretch panel in patient's girdle.

nary" kind has become difficult to find. It seems that not many department or women's specialty stores carry them, and those that do prefer to keep them hidden in the far reaches of the stock-rooms.

Among other specific dermatologic outbreaks we have seen aggravated by the wearing of stretch garments are pruritus hiemalis, lichen planus, chronic discoid lupus erythematosus (see figures) and atopic dermatitis.

Discussion

From the diversified morphologic features of the dermatitis described, it is evident that stretch garment dermatitis is not a morphological entity. What all the patients have in common is a skin eruption produced by the friction and close pressure of elasticized fabric, or else the aggravation of a pre-existing skin condition in those areas of the body in most intimate contact with such fabric. For this reason stretch garment dermatitis may be considered an entity from an etiologic if not from a morphologic or pathological standpoint. Since the causative factors we are considering here are essentially traumatic in nature, it could perhaps be argued that stretch garment dermatitis is merely

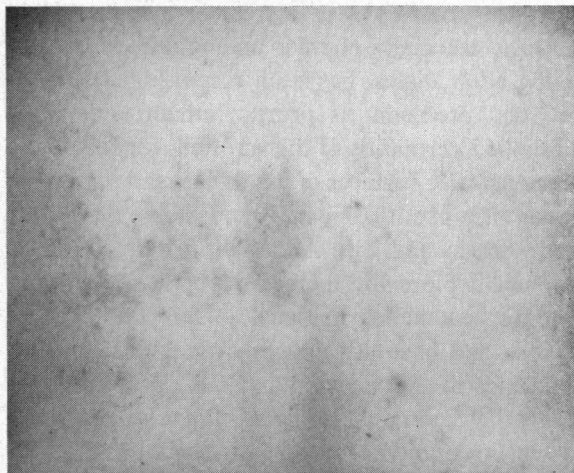


Figure 4.—Pruritus hiemalis, aggravated by friction from the stretch brassiere. Photograph of the center of the back.

a variation of the Koebner isomorphic phenomenon, as Farber and Carlsen pointed out in their paper on psoriasis in childhood.⁴ This is perhaps true, but stretch garment dermatitis seems to occur just as readily in the instance of banal skin diseases as it does with the acute eruptive forms. Perhaps the name "stretch garment dermatitis" is not completely accurate, either. We have adopted it as a matter of convenience because most of the skin eruptions produced by the friction of closely fitting wearing apparel result from the use of clothes made from elasticized material. Recently, however, we have become increasingly aware of similar outbreaks caused by clothing not made of stretch material as such. The present fashion for



Figure 5.—Stretch garment dermatitis. Chronic discoid lupus erythematosus occurring symmetrically on postero-lateral aspects of chest wall, where stretch bra binds. Smaller plaques of discoid lupus erythematosus were present under the arm straps.

short-rise trousers with extremely narrow cut to the legs, especially popular among adolescent and young adult males, has been responsible, we feel, for such problems as pruritic inflammatory and lichenified dermatitis of the scrotum, for folliculitis of the anterior surfaces of the thighs, and for aggravation of a pruritus hiemalis and atopic dermatitis of the thighs and legs. Although as dermatologists we may deplore the increased popularity of such potential cutaneous irritants, so long as they *are* in style and have advantages over the older types of fabrics in the viewpoint of the wearer and retailer, they are going to be worn and we are going to see more and more skin problems brought on by them.

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